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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/866,216	05/29/2001	Wilhelm Heine	NI 132	5875

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EXAMINER

MENON, KRISHNAN S

ART UNIT

PAPER NUMBER

1723

DATE MAILED: 10/03/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/866,216

Applicant(s)

HEINE ET AL.

Examiner

Krishnan S Menon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 May 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 recites the limitation "outer membrane elements" in last line. There is insufficient antecedent basis for this limitation in the claim. This will be considered as the membrane cover forming the pillow for examination purpose.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-9 and 12 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Hilgendorff et al (US 4,695,380).

Instant claim 1: Hilgendorff (380) discloses an apparatus for fluid separation comprising a pressure tight housing having a fluid inlet, retentate outlet and permeate outlet (3,5,4 -Fig 1,9), plurality of stacks of membrane filter elements arranged in series flow pattern (fig 9), each stack

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including a plurality of spaced membrane pillow elements (9-fig 1,9), and fluid flow is conducted in a meander like pattern through each stack (fig 9).

Instant claim 2: each pillow is contained in a closed space and includes inlet and outlet (fig 5), stacks arranged adjacent one another so that outlet of one is inlet of the next (fig 9).

Instant claim 3: separating elements between adjacent stacks with inlets and outlets (a membrane pillow separates each stack of different spacing in Fig 9).

Instant claim 4: inlets and outlets are slots formed in the separating elements (28-fig 6, slot in 33 and 34-fig 9)

Instant claim 5: the membrane pillows are essentially oblong in shape (fig 3, 4)

Instant claim 6: the membrane pillows are arranged in longitudinally displaced fashion (staggered) so that the flow reversal areas are formed by the projecting ends of alternate pillows (9-fig 1, 5)

Instant claim 7: membrane pillows have planar stabilizing elements disposed between outer membrane elements (structure in fig 3, 4)

Instant claim 8: spacer element with elastomer sealing element between pillows (fig 5, 8-fig 2a)

Instant claim 9: sealing elements are O rings (10-fig 5)

Instant claim 12: stacks have oblong cross-section (fig 9)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary

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skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hilgendorff (380) .

Hilgendorff (380) discloses an apparatus for fluid separation comprising a pressure tight housing having a fluid inlet, retentate outlet and permeate outlet (3,5,4 -Fig 1,9), plurality of stacks of membrane filter elements arranged in series flow pattern (fig 9), each stack including a plurality of spaced membrane pillow elements (9-fig 1,9), and fluid flow is conducted in a meander like pattern through each stack (fig 9). The membrane pillows are oblong (fig 3 and 4) and has a permeate opening along the longitudinal center axis of the pillow (instant claim 10 and 11). Hilgendorff (380) does not teach two permeate openings per pillow. It would be obvious to one of ordinary skill in the art at the time of invention that making two permeate openings is just duplication of the one permeate opening per pillow of Hilgendorff (380). It would also be obvious that the two openings would have to be at different distances from opposite ends. (Note: It has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*)

Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hilgendorff (380) in view of Luek et al (US 4,936,988).

Hilgendorff (380) discloses an apparatus for fluid separation comprising a pressure tight housing having a fluid inlet, retentate outlet and permeate outlet (3,5,4 -Fig 1,9), plurality of stacks of membrane filter elements arranged in series flow pattern (fig 9), each stack including a plurality of spaced membrane pillow elements (9-fig 1,9), and fluid flow is conducted in a meander like pattern through each stack (fig 9). Hilgendorff (380) teaches a jacket for the stacks (31-fig 9) which has an oblong or square cross-section (instant claim 15), and does not teach ⁽⁴⁰⁾semicircular stack shells for the stacks (instant claim 13, 14). Luek (988) teaches circular stack shells formed from two or more pieces to accommodate rectangular (oblong) membrane stacks in a cylindrical housing, with a permeate discharge channel extending longitudinally there through (fig 1, 2; col 2 lines 30-45) for a membrane filter apparatus. It would be obvious to one of ordinary skill in the art at the time of invention to use the Luek (988) teachings in the teachings of Hilgendorff (380) as alternate but equivalent for equivalent function.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hingendorff (US 5,891,222) and Heine et al (US 5,545,320) disclose filter apparatus with stacks of membrane pillows similar to the instant application.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S Menon whose telephone number is 703-305-5999. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L Walker can be reached on 703-308-0457. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.


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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Krishnan S. Menon
Patent Examiner
September 26, 2002


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